B O N N E V I L L E P O W E R A D M I N I S T R A T I O N

Single-Family New Construction Performance Path

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Today:

High Level Overview of the Performance Path System

Up Next:
(not today)

Training on REM/Rate, AXIS, and Calculator

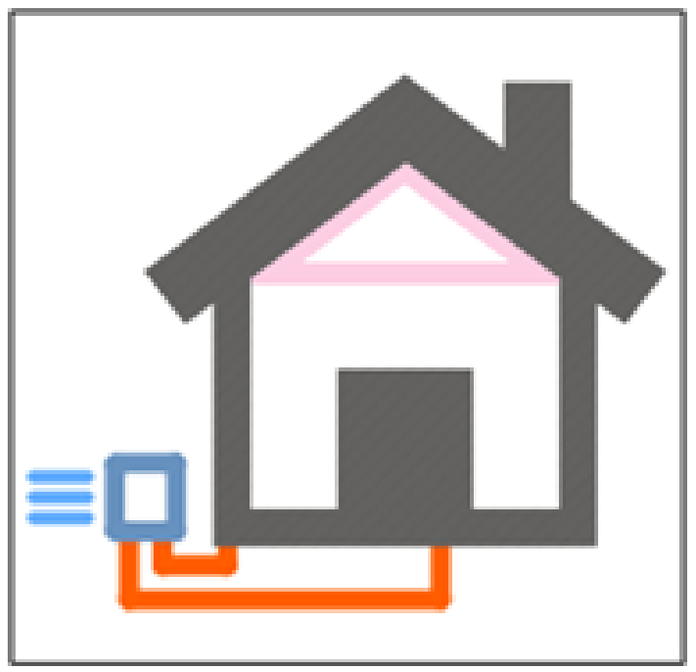
Presentation Roadmap

- Why/ When Performance Path
- How Performance Path Works
- Next Steps

1. Measure Flexibility

Incremental Energy Savings and Measures that are not yet UES Measures
Payment Based on Savings not Certification

Code Construction



Code + Heating and Insulation

Code + Insulation

2. Fewer Program Changes

The Performance Path can adapt to:

- Changes in technology
- New technology
- Code updates
- New certifications
- Certifications expiring

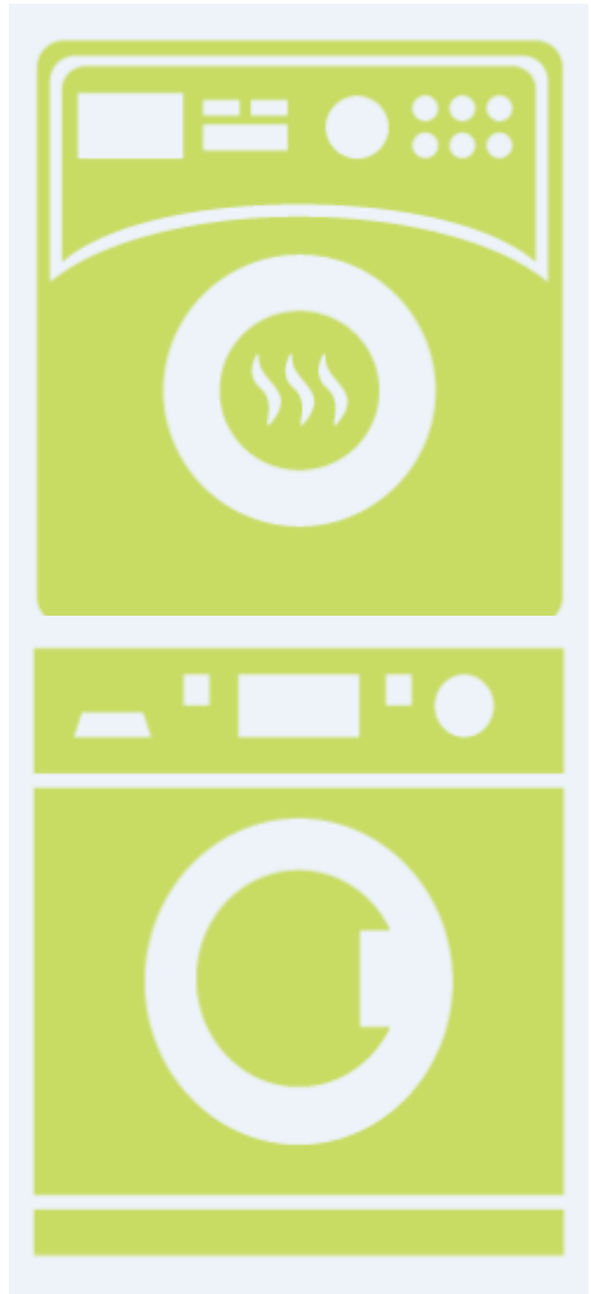
2. Utility Choice

The Performance Path can accommodate certification programs that utilize REM/ Rate:

- Built Green
- ENERGY STAR
- USDOE Zero Energy Ready
- National Green Building Standard

Or, use without a certification program

3. Electric Offering for Homes with Other Heat Sources



BPA "Single Family" Residential Definition

Single Family =

One through four dwelling units

Townhouse, condominiums or row houses that do not vertically overlap (side by side)

Is the New Single Family Construction Performance Path Right for Me?

Is it new single family construction?

Yes

No → This option is not available.

Will the new home be at least 10% more efficient than code?

Yes

No → Look to individual UES measures available in new construction.

Will the new home have additional insulation or other measures not available as stand alone UES measures?

Yes

No → Look to individual UES measures available in new construction.

Yes, the new Single Family Construction Performance Path is right for you.

Bonneville
POWER ADMINISTRATION

BPA New Single Family Construction Programs

PROGRAMS

Unit Energy Savings Measures

All States

NEW

Performance Path

All States

Prescriptive Programs

(Montana House
MT, ID, NV, WY
Heating Zones 2 and 3)

Presentation Roadmap

Why/ When Performance Path

How Performance Path Works

Next Steps

Performance Path Overview

Like NW ENERGY STAR Performance Path, with Improvements

Rater and REM/Rate

1

AXIS Database

2

Performance Path Calculator

3

New

1. REM/Rate

The modeling software currently used by ENERGY STAR Homes, HERS, Built Green, and more.

RTF/NEEA technical analysis established modeling protocols and guidelines that limit variability and uncertainty.

NEEA will leverage the role of the “Rater” to complete modeling with Builders.

1. REM/Rate

Options to Become a Rater:

- **REM/Rate Training:**
  - RESNET HERS accreditation, or
  - NEEA Rater equivalent

+ NW Modeling Protocols

(utilities may add requirements at their discretion)

2. AXIS Database

- **Licensed through NEEA with Pivotal Energy Solutions**

- **Introduced in 2013 to support Northwest Energy Star Homes and Energy Trust EPS**

- **Provides integrated savings calculations**
  - REM/Rate + UES Measures

2. AXIS Resources

Utility Orientation:

Provided by NEEA

Live webinar trainings

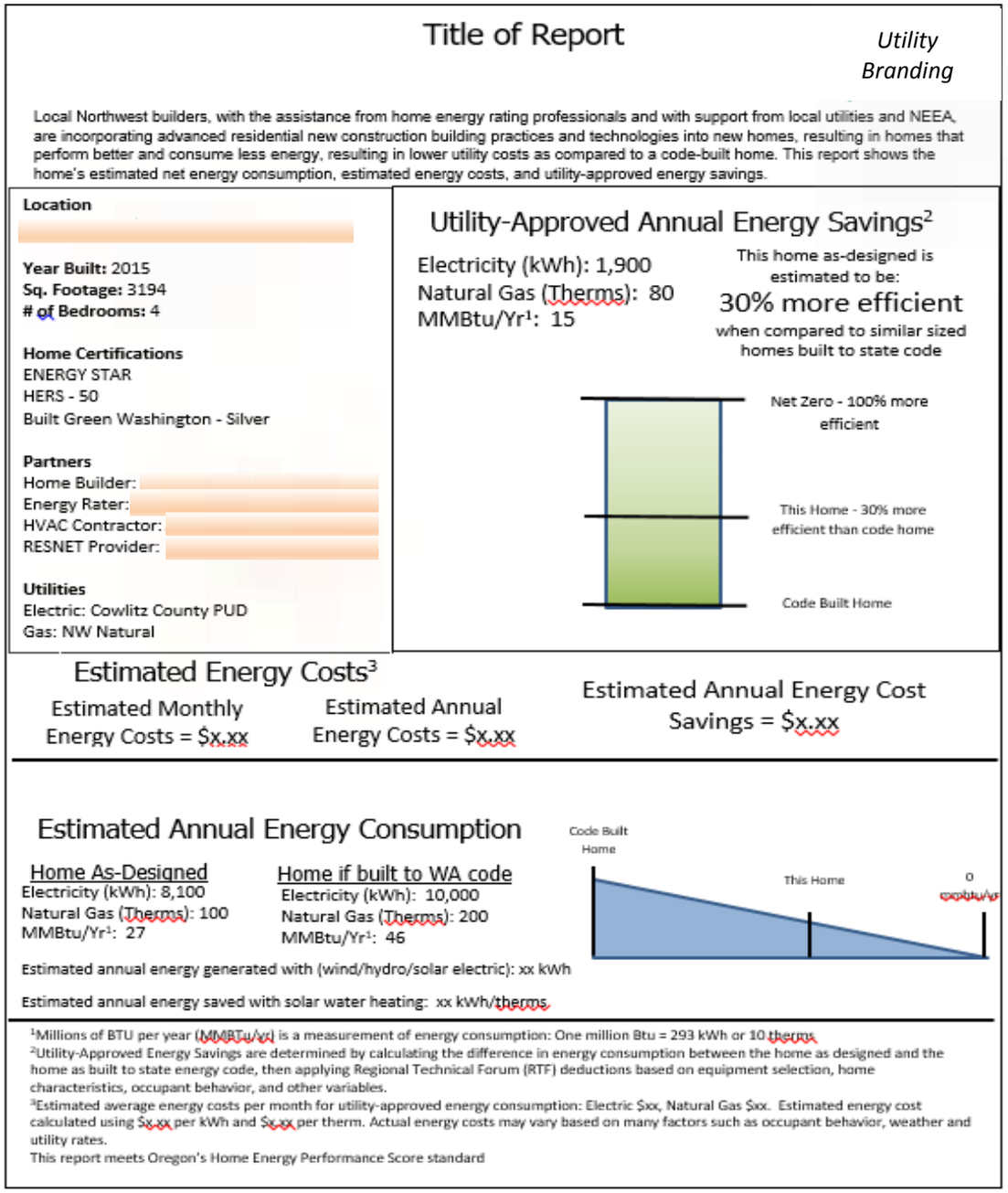
May 22 and 23, 2017

Recorded for later viewing

Utility Reports:

BPA calculator

Project Report



Title of Report

Utility Branding

Local Northwest builders, with the assistance from home energy rating professionals and with support from local utilities and NEEA, are incorporating advanced residential new construction building practices and technologies into new homes, resulting in homes that perform better and consume less energy, resulting in lower utility costs as compared to a code-built home. This report shows the home's estimated net energy consumption, estimated energy costs, and utility-approved energy savings.

Location

Year Built: 2015
Sq. Footage: 3194
# of Bedrooms: 4

Home Certifications
ENERGY STAR
HERS - 50
Built Green Washington - Silver

Partners
Home Builder:
Energy Rater:
HVAC Contractor:
RESNET Provider:

Utilities
Electric: Cowlitz County PUD
Gas: NW Natural

Utility-Approved Annual Energy Savings[2]

Electricity (kWh): 1,900
Natural Gas (Therms): 80
MMBtu/Yr[1]: 15

This home as-designed is estimated to be:
30% more efficient
when compared to similar sized homes built to state code

Net Zero - 100% more efficient

This Home - 30% more efficient than code home

Code Built Home

Estimated Energy Costs[3]

Estimated Monthly Energy Costs = $x.xx

Estimated Annual Energy Costs = $x.xx

Estimated Annual Energy Cost Savings = $x.xx

Estimated Annual Energy Consumption

Home As-Designed	Home if built to WA code
Electricity (kWh): 8,100	Electricity (kWh): 10,000
Natural Gas (Therms): 100	Natural Gas (Therms): 200
MMBtu/Yr[1]: 27	MMBtu/Yr[1]: 46

Code Built Home

This Home

0

Estimated annual energy generated with (wind/hydro/solar electric): xx kWh

Estimated annual energy saved with solar water heating: xx kWh/therms

[1]Millions of BTU per year (MMBTu/yr) is a measurement of energy consumption: One million Btu = 293 kWh or 10 therms

[2]Utility-Approved Energy Savings are determined by calculating the difference in energy consumption between the home as designed and the home as built to state energy code, then applying Regional Technical Forum (RTF) deductions based on equipment selection, home characteristics, occupant behavior, and other variables.

[3]Estimated average energy costs per month for utility-approved energy consumption: Electric $xx, Natural Gas $xx. Estimated energy cost calculated using $x.xx per kWh and $x.xx per therm. Actual energy costs may vary based on many factors such as occupant behavior, weather and utility rates.

This report meets Oregon's Home Energy Performance Score standard

3. Performance Path Calculator Overview

kWh Savings X Measure Life Payment Rate = Payment

Measure Information				
Measure Type	**Measure Life**	**Site kWh Savings**	**Payment Rate**	**Payment**
HVAC Equipment	15	500	$0.27	$135.00
Lighting	12	400	$0.10	$40.00
Water Heating	13	1,200	$0.27	$324.00
Appliances & Other Electronics	15	200	$0.27	$54.00
Windows, Insulation, & Other Shell	45	2,000	$0.45	$900.00
Smart Thermostats	5	580	$0.10	$58.00

Total Savings and Payment				
Total State Code Reference Home kWh Consumption	**Total Busbar kWh Consumption**	**Total Busbar kWh Savings**	**Is Home 10% Above Code?**	**Total Payment**
16,000	10,730	★ 5,270	Yes	★ $1,453.00

3. Upload in UES Measure Upload Template

CALCULATOR RESULTS (Use ONLY for calculator outputs)			
CALCULATOR SAVINGS PER UNIT	**CALCULATOR REIMBURSEMENT PER UNIT**	**CALCULATOR PROJECT COST**	**CALCULATOR BC RATIO**
Site-level savings per unit, if output by the calculator. For SIS input site-level kWh/Acre.	Reimbursement per unit, if output by calculator.	Project cost, if output by calculator.	BC ratio, if output by calculator.
5,270	**$1,453**		

Performance Path Summary

Rater and REM/Rate

1

AXIS Database

2

Performance Path Calculator

3

Presentation Roadmap

- Why/ When Performance Path
- How Performance Path Works
- **Next Steps**

Next Steps - Training

REM/Rate

	Monday 5/22	Tuesday 5/23
10 am–12 pm	Utility: Session A	Rater: Session B
1 – 3 pm	Rater: Session A	Utility: Session B

NEEA Training

AXIS Database

NEEA Training

Performance Path Calculator

Contact BPA

Questions?

Eligibility, Calculator

- Jess Kincaid, BPA JBKincaid@BPA.Gov
- or your EE Representative

REM/Rate, AXIS Database

- Neil Grigsby, NEEA NGrigsby@NEEA.Org

BACKUP SLIDES

Integrating Prescriptive Paths